

REMARKS

In the October 18, 2002 office action, claims 2-7 and 9-34 were rejected under 35 USC 103(a) as being unpatentable over USP 4,509,886 to Lindsay.

Claims 2-7 and 9-34, as amended herein, are being submitted for the Examiner's consideration.

A Declaration under 37 CFR 1.132 of inventor Uzi Gati is being concurrently submitted.

Amendment to the Claims

The dependency of claims 24-26, each of which are directed to a "cutting tool assembly", has been changed from "claim 22" (which is a dependent "cutting insert" claim) to --claim 23-- (which is an independent "cutting tool assembly" claim).

Issue

The principal issue is whether pending claims 2-7 and 9-34 are non-obvious over the Lindsay reference.

Argument

A. The Examiner's Position

In formulating the rejection of claims 2-7 and 9-34 as being unpatentable over Lindsay, the Examiner's October 18, 2002 rejection states:

Lindsay discloses most of the elements of the claims but for features such as the protrusion being on the insert and the corresponding recess being on the insert holder (Lindsay shows the reverse). Lindsay also does not teach the recess extending in a longitudinal direction and the clamping abutment surfaces of the insert being sloped. On the other hand it would have been obvious to provide the invention of Lindsay with the missing features for the purpose of more securely retaining the insert, to allow for easier insertion and removal of the insert, for design or aesthetic reasons, or depending on the particular

application/insert desired. Reversing the surfaces on which a protrusion and recess are placed would not appear to be novel or unobvious, for example. (Emphasis added).

And in response to Applicant's 07/30/02 amendment pointing out that there was no motivation to modify Lindsay, the Examiner first stated that one can take into account "the common knowledge of the artisan", and then simply concluded:

The modifications to Lindsay set forth above are considered to be well within the skill level of one having ordinary skill in the relevant art.

The Examiner's assertions, and the rejection of claims 2-7 and 9-34 are traversed. Contrary to the Examiner's assertion, one skilled in the art simply would not modify the cutting insert or cutting tool assembly of Lindsay so as to arrive at the present invention of any of independent claims 2, 9, 19, 23, 27 or 31.

B. Claims 2-7 are Patentable over Lindsay Because One Skilled in the Art Would Not Reverse the Keyway and Pin in Lindsay's Design

Pending independent claim 2 is directed to a cutting insert having at least one side surface provided with an axial location member formed as a protrusion.

Lindsay discloses a cutting insert 32 having at least one side surface provided with an axial location member in the form of a keyway¹ 38 that cooperates with a pin² 26 provided in the tool holder's insert receiving slot. Ostensibly, the Examiner's position is that "reversing the surfaces on which a protrusion and recess are placed would not appear to be novel or unobvious." It is respectfully submitted, however, that the Examiner's position is mistaken because reversing Lindsay's keyway and pin simply would not make sense to one skilled in the art.

As stated at Lindsay's col. 2, lines 48-52, the "locating key or pin 26 is received in a generally transversely extending hole 28 in one side 30 of the tool." To reverse Lindsay's keyway 38 and pin 26 would require one to (a) form a transversely extending hole in the

¹ Which the Examiner presumably considers a 'recess'

² Which the Examiner presumably considers a 'protrusion'

cutting insert 32; and (b) insert a pin 26 into the newly formed transversely extending hole. One skilled in the art would not be inclined to make these changes because it would result in a cutting insert that is more costly to manufacture and more cumbersome to use. (*See* Declaration of Uzi Gati, ¶ 5). And low cost is certainly an object of Lindsay: “it is the primary object of the present invention to use . . . indexable and replaceable carbide inserts that are less expensive than inserts that have heretofore been available for use . . . It is a further object of the invention to . . . (use) indexable and replaceable carbide inserts that have a transversely extending keyway machined in one face. Such inserts are relatively inexpensive to manufacture.” Lindsay, col. 1, lines 19-28. In view of all of the foregoing, it is submitted that one skilled in the art, upon seeing Lindsay’s assembly, would not be motivated to reverse the keyway and the pin.

C. Claims 9-34 are Patentable over Lindsay Because Lindsay Teaches Away from Permitting Longitudinal Movement of the Insert Relative to the Insert Holder

Independent claims 9, 19, 23, 27 and 31 clearly recite structure that permits sliding insertion of a cutting insert into a cutting insert holder, along a longitudinal direction of the cutting insert.

Independent “cutting tool assembly” claims 9, 23, and 31 each recite structures having a shape that “permits sliding insertion and removal of the cutting insert into the insert holder, along (said) longitudinal direction.” Thus, insertion (and removal) in the present invention can be achieved by loosening one or more clamping screws and inserting (or pulling out) the cutting insert along the cutting insert’s longitudinal direction.

Independent “cutting insert” claim 19 recites “an axially directed recess open in said longitudinal direction” while independent “cutting insert” claim 27 recites an “axial location member . . . shaped so as to permit insertion to the cutting insert along said longitudinal direction.”³

³ Pending independent claim 27 also recites sloped upper and lower clamping abutment surfaces.

Applicant reiterates⁴ that Lindsay teaches away from a tool holder and/or a cutting insert that permits removal of the cutting insert in a longitudinal direction. Applicant also notes that the Examiner did not deny this in the October 18, 2002 office action. To emphasize the degree to which Lindsay teaches away from the invention of independent claims 9, 19, 23, 27 and 31, the Examiner is kindly asked to take note of the following:

Lindsay's Figs. 1, 2, 4 & 5 disclose a first cutting insert/tool assembly embodiment⁵. With regard to this first embodiment, Lindsay makes it abundantly clear that the "locating key or pin 26" prevents longitudinal movement of the cutting insert:

- "The key engages the keyway of the insert longitudinally to locate the insert relative to the holder and to prevent longitudinal movement with respect thereto."⁶
- "The key locates the insert relative to the holder and prevents longitudinal movement with respect thereto."⁷
- "the pin (26) engages the keyway (38) to ... prevent longitudinal movement with respect thereto."⁸
- "the key engaging the keyway longitudinally ... to prevent movement thereof in the direction of the longitudinal axis of the holder"⁹

Lindsay's Figs. 3, 6 and 7 disclose a second cutting insert/tool assembly embodiment¹⁰. With regard to this second embodiment, Lindsay makes it abundantly clear that "the retaining lip 74" prevents longitudinal movement of the cutting insert:

⁴ See Amendment filed July 30, 2002, p. 14, first full paragraph

⁵ Lindsay, col. 2, line 32 - col. 3, line 15.

⁶ Lindsay, "Summary of the Invention", col. 1, lines 66-68

⁷ Lindsay, "Summary of the Invention", col. 2, lines 6-8

⁸ Lindsay, "Detailed Description of the Preferred Embodiments", col. 2, lines 60-63 and again at col. 3, lines 9-12

⁹ Lindsay, independent claim 4, col. 5, line 15 - col. 6, line 1

¹⁰ Lindsay, col. 3, lines 16-62.

- “The lip engages the keyway longitudinally to locate the insert relative to the holder and to prevent longitudinal movement with respect thereto”¹¹
- “Thus, with the insert 76 is placed in the slot 66, the lip 74 engages the keyway 82 longitudinally to ... prevent longitudinal movement with respect thereto.”¹²
- “the lip engaging the keyway longitudinally ... to prevent movement thereof in the direction of the longitudinal axis of the holder”¹³

Thus, for all of Lindsay’s embodiments:

- (a) The figures show arrangements which prevent longitudinal insertion and removal of a cutting insert;
- (b) The “Summary of the Invention” states that the structure prevents longitudinal movement;
- (c) The “Detailed Description” states that the structure prevents longitudinal movement; and
- (d) The independent claims recites that the structure prevents longitudinal movement.

In view of this, it is submitted that one skilled in the art would not be motivated to modify Lindsay in a manner that would *permit* longitudinal insertion and removal of cutting insert into a tool holder, since this is the complete opposite of a prominent feature in Lindsay (*See* Declaration of Uzi Gati, ¶ 7). And for this reason, it is further submitted that pending independent claims 9, 19, 23, 27 and 31 clearly are non-obvious over the teachings of Lindsay.

If the Examiner insists on maintaining the rejection of independent claims 9, 19, 23, 27 and 31 as being unpatentable over Lindsay, the Examiner is kindly asked to explain why one skilled in the art would modify Lindsay in a manner that is so wholly contrary to

¹¹ Lindsay, “Summary of the invention, col. 1, lines 59-62

¹² Lindsay, “Detailed Description of the Preferred Embodiments”, col. 3, lines 43-46

¹³ Lindsay, independent claim 1, col. 4, lines 33-37

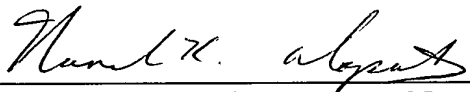
Lindsay's teachings.

Reconsideration of the application is requested. Claims 2-7 and 9-34 are believed to be in allowable form and define over the prior art. An early notice of allowance is requested so that the application can proceed to issue.

No fee is believed to be due for this submission. Should a fee be required, the Commissioner is authorized to charge any such fee to Pennie & Edmonds LLP's Deposit account no. 16-1150.

Respectfully Submitted,

Date: Jan 21, 2003



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Appendix A
Marked-Up copy of the Claims Amended January 21, 2003

24. (Amended) A cutting tool assembly in accordance with Claim 23 [22], wherein the axially directed recess is spaced apart from the upper and lower clamping abutment surfaces.

25. (Amended) A cutting tool assembly in accordance with Claim 23 [22], wherein both the first and second side surfaces are provided with an axially directed recess.

26. (Amended) A cutting tool assembly in accordance with Claim 23 [22], wherein said at least one of the first and second side surfaces is provided with two axially directed recesses facing in opposite directions.

Appendix B
Pending Claims after Amendment filed January 21, 2003

2. (Amended) A cutting insert comprising a central body portion extending between two opposite end portions, each end portion being provided with a cutting edge; the central body portion being provided with upper and lower clamping abutment surfaces with first and second side surfaces extending therebetween; at least one of the first and second side surfaces being provided with an axial location member, wherein the axial location member is a protrusion.

3. (Original) A cutting insert in accordance with Claim 2, wherein the protrusion is square shaped.

4. (Amended) A cutting insert in accordance with Claim 2, having a 180° rotational symmetry about an axis perpendicular to a longitudinal plane (P) of the cutting insert and passing through the center of the protrusion.

5. (Amended) A cutting insert in accordance with Claim 2, wherein the upper and lower clamping abutment surfaces are sloped, defining therebetween a variable distance so that when the cutting insert is viewed in an end view the distance between the upper and lower clamping abutment surfaces is a maximum at the first side surface and a minimum at the second side surface.

6. (Amended) A cutting insert in accordance with Claim 2, wherein the upper and lower clamping abutment surfaces have the form of V-shaped protrusions.

7. (Amended) A cutting insert in accordance with Claim 2, wherein the upper and lower clamping abutment surfaces have the form of V-shaped grooves.

9. (Amended) A cutting tool assembly comprising:

a cutting insert holder; and

a cutting insert;

the cutting insert holder comprising:

an upper clamping jaw having an upper clamping surface;

a lower base jaw having a lower clamping surface;

an insert holder inner side surface extending between the upper and lower clamping surfaces; and

an insert pocket bound on two opposite sides by the upper and lower clamping surfaces and bound on a third side extending between the two opposite sides by the insert holder inner side surface; the insert holder inner side surface being provided with a positioning member;

the cutting insert comprising:

a central body portion extending in a longitudinal direction of the cutting insert between two opposite end portions, each end portion being provided with a cutting edge; the central body portion being provided with upper and lower clamping abutment surfaces with first and second side surfaces extending therebetween; at least one of the first and second side surfaces being provided with an axial location member;

wherein the upper clamping abutment surface is configured to abut the upper clamping surface; the lower clamping abutment surface is configured to abut the lower clamping surface and the positioning member is configured to engage the axial location member to thereby fix the axial location of the cutting insert; and

wherein the axial location member is a protrusion and the positioning member is a rear surface of a recess in the insert holder inner side surface, the protrusion and the recess being shaped so as to permit sliding insertion and removal of the cutting insert into the insert holder, along the longitudinal direction of the cutting insert.

10. (Amended) A cutting tool assembly in accordance with Claim 9, wherein the protrusion is square-shaped.

11. (Amended) A cutting tool assembly in accordance with Claim 9, wherein the cutting insert has a 180° rotational symmetry about an axis perpendicular to a longitudinal plane (P) of the cutting insert and passing through the center of the protrusion.

12. (Amended) A cutting tool assembly in accordance with Claim 9, wherein the upper and lower clamping abutment surfaces are sloped, defining therebetween a variable distance, so that when the cutting insert is viewed in an end view the distance between the upper and lower clamping abutment surfaces is a maximum at the first side surface and a minimum at the second side surface and the upper and lower clamping surfaces of the upper clamping jaw and the lower base jaw, respectively, are matchingly sloped.

13. (Amended) A cutting tool assembly in accordance with Claim 9, wherein the upper and lower clamping abutment surfaces have the form of V-shaped protrusions and the upper and lower clamping surfaces of the upper clamping jaw and the lower clamping jaw, respectively, have the form of matching V-shaped grooves.

14. (Amended) A cutting tool assembly in accordance with Claim 9, wherein the upper and lower clamping abutment surfaces have the form of V-shaped grooves and the upper and lower clamping surfaces of the upper clamping jaw and the lower clamping jaw, respectively, have the form of matching V-shaped protrusions.

15. (Original) A cutting tool assembly in accordance with Claim 9, wherein the protrusion is spaced apart from the upper and lower clamping abutment surfaces.

16. (Original) A cutting tool assembly in accordance with Claim 9, wherein both the first and second side surfaces of the cutting insert are provided with a protrusion.

17. (Original) A cutting insert in accordance with Claim 2, wherein the protrusion is spaced apart from the upper and lower clamping abutment surfaces.

18. (Original) A cutting insert in accordance with Claim 2, wherein both the first and second side surfaces are provided with a protrusion.

19. (Original) A cutting insert comprising a central body portion extending in a longitudinal direction of the cutting insert between two opposite end portions, each end portion being provided with a cutting edge; the central body portion being provided with upper and lower clamping abutment surfaces with first and second side surfaces extending therebetween; at least one of the first and second side surfaces being provided with an axial location member formed as an axially directed recess open in said longitudinal direction.

20. (Original) A cutting insert in accordance with Claim 19, wherein the axially directed recess is spaced apart from the upper and lower clamping abutment surfaces.

21. (Original) A cutting insert in accordance with Claim 19, wherein both the first and second side surfaces are provided with an axially directed recess.

22. (Original) A cutting insert in accordance with Claim 19, wherein said at least one of the first and second side surfaces is provided with two axially directed recesses facing in opposite directions.

23. (Original) A cutting tool assembly comprising:
a cutting insert holder; and
a cutting insert;
the cutting insert holder comprising:
an upper clamping jaw having an upper clamping surface;
a lower base jaw having a lower clamping surface;
an insert holder inner side surface extending between the upper and lower clamping surfaces; and
an insert pocket bound on two opposite sides by the upper and lower clamping surfaces and bound on a third side extending between the two opposite sides by the

insert holder inner side surface; the insert holder inner side surface being provided with a positioning member;

the cutting insert comprising:

a central body portion extending in a longitudinal direction of the cutting insert between two opposite end portions, each end portion being provided with a cutting edge; the central body portion being provided with upper and lower clamping abutment surfaces with first and second side surfaces extending therebetween; at least one of the first and second side surfaces being provided with an axial location member;

wherein the upper clamping abutment surface is configured to abut the upper clamping surface; the lower clamping abutment surface is configured to abut the lower clamping surface and the positioning member is configured to engage the axial location member to thereby fix the axial location of the cutting insert; and

wherein the axial location member is an axially directed recess open in said longitudinal direction and the positioning member is a protrusion on the insert holder inner side surface, the axially directed recess and the protrusion being shaped so as to permit sliding insertion and removal of the cutting insert into the insert holder, along said longitudinal direction.

24. (Amended) A cutting tool assembly in accordance with Claim 23, wherein the axially directed recess is spaced apart from the upper and lower clamping abutment surfaces.

25. (Amended) A cutting tool assembly in accordance with Claim 23, wherein both the first and second side surfaces are provided with an axially directed recess.

26. (Amended) A cutting tool assembly in accordance with Claim 23, wherein said at least one of the first and second side surfaces is provided with two axially directed recesses facing in opposite directions.

27. (Original) A cutting insert comprising a central body portion extending in a

longitudinal direction of the cutting insert between two opposite end portions, each end portion being provided with a cutting edge; the central body portion being provided with sloped upper and lower clamping abutment surfaces which define therebetween a variable distance, the sloped upper and lower clamping abutment surfaces having first and second side surfaces extending therebetween; at least one of the first and second side surfaces being provided with an axial location member, wherein the axial location member is shaped so as to permit insertion of the cutting insert along said longitudinal direction.

28. (Original) A cutting insert in accordance with Claim 27, wherein, when the cutting insert is viewed in an end view, the distance between the upper and lower clamping abutment surfaces is a maximum at the first side surface and a minimum at the second side surface.

29. (Original) A cutting insert in accordance with Claim 27, wherein the upper and lower clamping abutment surfaces have the form of V-shaped protrusions.

30. (Original) A cutting insert in accordance with Claim 27, wherein the upper and lower clamping abutment surfaces have the form of V-shaped grooves.

31. (Original) A cutting tool assembly comprising:

a cutting insert holder; and

a cutting insert;

the cutting insert holder comprising:

an upper clamping jaw having an upper clamping surface;

a lower base jaw having a lower clamping surface;

an insert holder inner side surface extending between the upper and lower clamping surfaces; and

an insert pocket bound on two opposite sides by the upper and lower clamping surfaces and bound on a third side extending between the two opposite sides by the insert holder inner side surface; the insert holder inner side surface being provided with a positioning member;

the cutting insert comprising:

a central body portion extending in a longitudinal direction of the cutting insert between two opposite end portions, each end portion being provided with a cutting edge; the central body portion being provided with sloped upper and lower clamping abutment surfaces which define therebetween a variable distance, the sloped upper and lower clamping abutment surfaces having first and second side surfaces extending therebetween; at least one of the first and second side surfaces being provided with an axial location member,

wherein the upper clamping abutment surface is configured to abut the upper clamping surface; the lower clamping abutment surface is configured to abut the lower clamping surface and the positioning member is configured to engage the axial location member to thereby fix the axial location of the cutting insert; and

wherein the axial location member and the positioning member are shaped so as to permit sliding insertion and removal of the cutting insert into the insert holder, along said longitudinal direction.

32. (Original) A cutting insert in accordance with Claim 31, wherein, when the cutting insert is viewed in an end view, the distance between the upper and lower clamping abutment surfaces is a maximum at the first side surface and a minimum at the second side surface.

33. (Original) A cutting insert in accordance with Claim 31, wherein the upper and lower clamping abutment surfaces have the form of V-shaped protrusions.

34. (Original) A cutting insert in accordance with Claim 31, wherein the upper and lower clamping abutment surfaces have the form of V-shaped grooves.

Examiner
1-28-03
48

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of: Uzi Gati

Application No.: 09/873,331

Group Art Unit: 3712

Filed: June 5, 2001

Examiner: Jacob ACKUN

For: CUTTING TOOL ASSEMBLY

Attorney Docket No.: 10236-0027

DECLARATION OF UZI GATI UNDER 37 CFR ' 1.132

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

I, Uzi Gati, hereby declare that:

1. I am a citizen of Israel and reside at 47 Mishol Moran, Karmiel, Israel.
2. I have been employed by Iscar Ltd. for 15 years and I have a total of 20 years' experience in the design, development and production of metal cutting inserts and metal cutting tools.
3. I am the inventor of the above-identified patent application.
4. I have read the October 18, 2002 Office Action in the above-identified patent application and USP 4,509,886 to "Lindsay", which is cited in the Office Action.
5. In paragraph 2 of the October 18, 2002 office action, the Examiner seems to imply that it would be obvious to switch the keyway 38 formed in Lindsay's cutting insert 32 with the transversely extending hole 28 and 'locating key or pin 26' formed in the tool holder's insert receiving slot. I do not agree with this. What the Examiner suggests would require one to form a transversely extending hole in the cutting insert 32 and insert a pin 26 into the

newly formed transversely extending hole in the cutting insert. This would result in a cutting insert that is more costly to manufacture and more cumbersome to use.

6. Switching the keyway 38 formed in Lindsay's cutting insert 32 with the tool holder's transversely extending hole 28 and 'locating key or pin 26' would not result in a cutting insert that could be inserted and removed in a longitudinal direction, since the keyway's vertically oriented channel would prevent such longitudinal movement.

7. Lindsay's keyway, in all embodiments, has a vertically oriented channel. This aids in preventing longitudinal movement of the insert relative to the tool holder, a goal that Lindsay repeatedly emphasizes. Re-orienting the channel so that it assumes a horizontal orientation would be contrary to Lindsay's apparent goal.

8. I further declare that all statements made herein of my own knowledge are true and all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of this application or any patent issuing thereon.

Date:

20.1.03



Uzi Gati